Non-compliance, informal working and the Covid-19 pandemic:

Implications for modern slavery in the UK

Report

Work, Informalisation and Place Research Centre

Nottingham Trent University

Commissioned by the Modern Slavery Policy and Evidence Centre and the Arts and Humanities Research Council

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Executive Summary

This report explores non-compliant employment practices in a set of sectors in the UK highlighted as problematic by regulators and enforcement agencies. More specifically, it seeks to examine how the Covid-19 pandemic may have impacted on these non-compliant businesses and their workers by:

a) identifying the neighbourhoods where such employment sites are most likely to be found.
b) establishing where the pandemic may have had the most significant economic impact, and whether these are the localities where the non-compliant economy is most likely to be operating; and
c) whether the recovery of customer footfall after the lifting of Covid-19 restrictions in February 2022 has been slower in neighbourhoods where non-compliance is concentrated.

The aim of our research is to provide an improved understanding of the scope and scale of non-compliant labour practices with the potential to degrade towards modern slavey in the UK and support partners to better understand where non-compliance is more or less likely to occur the UK.

Interview evidence from enforcement agencies and regulators suggests a potential link between non-compliance with labour, environmental, health and safety, and breach of other regulations such as employer liability insurance and modern slavery. This link flows from our research hypothesis, informed by interviews and discussions with enforcement agencies, regulators and NGOs which suggest to us that non-compliance leads to the development of alternative regulatory spaces within which unlawful and immoral practices occur. Therefore, we agree with the Gangmasters and Labour Abuse Authority (GLAA), that alternative forms of regulation enable a continuum of exploitation. This research sets out to open a discussion about using a place-based approach that challenges notions of intelligence-led interventions and helps improve enforcement and regulatory practice to help make it harder for acts of forced labour and slavery to occur across the UK.

To do this we must first overcome the significant data challenge to understand and map non-compliant behaviour and practices in the workplace. This report addresses this challenge with new evidence that highlights both the businesses and locations that are more likely to operate in a non-compliant way and which show signs of creating and operating in alternative regulatory spaces. Therein a culture of 'permissive visibility' (Clark and Colling, 2018) means that these infractions may go unchallenged potentially leading to further unlawful and practices that develop towards modern slavery in the workplace.

This research was undertaken in the shadow of the Covid-19 pandemic

and commenced in December 2020. We have attempted to highlight how the economic impact of this pandemic is felt in different parts of the UK using indices based at the neighbourhood level. We will explore the economic impact of Covid-19 on wages and economic security and how these correlate to areas of greater labour market non-compliance and informal work relations. This evidence will highlight areas of most significant concern in the UK. By doing this we hope to provide an alternative way of developing risk profiles for neighbourhoods where the opportunity to engage in informal non-compliant work combined with economic pressures resulting from the pandemic may force workers to accept workplace coercion and exploitation at non-compliant employers.

One of the most cited definitions of the informal economy refers to 'the process of income generation' characterized by one central feature: it is unregulated by the institutions of society, in legal and social environments where similar activities are regulated (Castells and Portes, 1989:12). We develop this definition to describe the application of business models and associated employer opportunism that enable competitive advantage by exploiting vulnerable workers in workplaces that fail to comply with labour market regulations. Workers engaged at informal workplaces labour under business models that provide insecure, irregular working hours, underpay wages, and which are likely to ignore holiday and sick pay entitlements. By association the physical environment in workplaces often breaches environmental and health and safety standards where vulnerable workers, that is, those who must, or are willing, to accept informalized non-compliant employment, tolerate unlawful practices. It is the case too that informal non-compliant workplaces may exhibit modern slavery.

This project was undertaken in three stages. Firstly, a literature review was conducted to examine and flesh out our research questions around non-compliance, modern slavery and the Covid-19 pandemic. Secondly, we undertook a series of mapping exercises for business sectors identified by partners and academics as being at significant risk for labour market and other non-compliant behaviours. We then identified modern slavery risks to help us understand where non-compliance occurs in the UK and how it relates to modern slavery and the Covid-19 pandemic.

We mapped neighbourhoods across Birmingham, Greater Manchester, and parts of the East Midlands for hand car washes, nail bar businesses and small garment workshops that employ fewer than thirty workers across Leicester. We then developed a series of indices on the scale and spread of informal non-compliant work across England. This was then complimented by a Covid-19 economic impact index that is designed to support policy

makers, academics, and regulators to develop a more spatially literate understanding of where and how non-compliance and modern slavery potentially operates in England – and how the pandemic impacts on these forms of behaviour to a greater or lesser extent.

This work models the spatial factors that predict the existence of hand car washes and nail bars across all neighbourhoods in England. Portions of this work have been used by regulatory agencies such as the Gangmasters and Labour Abuse Authority, HMRC National Minimum Wage Team, and the National Crime Agency to better understand and tackle labour market non-compliance and modern slavery.

The results of this project highlight the potential areas of concern for regulators and the challenge of creating a unified understanding of labour market non-compliance and modern slavery whilst creating a series of spatial tools to highlight potential hotspots of concern that Local Authorities, Police Forces, NGOs and government agencies and regulators may wish to target.

Our project focuses on several sectors that operate within an alternative regulatory space where state actors have failed to challenge the presence of combined form regulations, that is, specific forms of regulation that employers impose, and employees appear to accept in the context of a specific network or particular sector. These 'regulations' are accepted even though they may be in part or wholly unlawful and represent a form of constrained agency. The combined form regulations described above exist on a continuum of labour non-compliance, and we argue that this must be challenged to tackle both the more routine and abhorrent forms of exploitation that occur in the UK. The impact and economic shock effects of Covid-19 has enhanced the risk that businesses operating informally in low productivity spaces may choose to take further unlawful steps to ensure business viability. This may involve non-compliant employment practices and policies, where the indicative evidence suggests the potential for modern slavery is likely to put workers in harm's way.

The analysis presented here demonstrates that hand car washes, nail bars, and other non-compliant sectors are spatially concentrated within specific neighbourhood types that have often experienced economic decline, loss of traditional forms of employment, and suffer from higher levels of economic and income deprivation. The economic impact of the Covid-19 pandemic based upon the economic structure of areas is also spatially concentrated. Whilst the spatial concentration of Covid-19 cases was in larger cities and towns, our Covid-19 economic impact index has identified

many rural areas that are equally likely to have experienced, and will continue to experience, significant economic problems arising from the lockdown-imposed disruption to residential and worker movements.

Changes in population mobility during the pandemic in relation to groceries and pharmacies, recreation and retail, transport hubs, and workplaces unsurprisingly also exhibited marked spatial variations at the local authority level. Local authority areas with a much higher predicted concentration of nail bars experienced a significantly greater reduction in customer footfall compared to pre-pandemic levels. In contrast, the concentration of essential core public and private sector workplaces within some local authorities revealed lower drops in customer footfall – and these are also those localities where there is a greater predicted preponderance of hand car washes.

Based upon our findings, the impact of the Covid-19 pandemic is likely to have been mixed in relation to non-compliant businesses and areas with heightened risk of modern slavery. The precarious nature of workplaces and the position/circumstances of workers employed within these means that the general economic downturn arising from the pandemic may reinforce the adverse socio-economic circumstances that give rise to more significant numbers of non-compliant businesses within specific neighbourhoods.

Introduction

Our research project funded by the Modern Slavery and Human Rights Policy and Evidence Centre aims to provide new knowledge to understand potential pathways to modern slavery. Therein managers and business owners at some non-compliant businesses chose to install alternative regulatory networks, that operate beyond institutional regulation by the state, that rest on the application of non-compliant employment practices. This project fits into a broader body of work undertaken by the Work, Informalisation and Place Research Centre that focuses on how businesses and sectors operate in and around the rules of the state to create viable but unlawful non-compliant enterprises. We utilise a mixture of industrial relations, criminological and spatial methodologies to enhance our understanding of work and how it interacts with place. To undertake this work, we combine innovative mapping methods with quantitative and spatial statistical analysis to identify the location and scale of business sectors identified as largely non-compliant or operating in informal ways. We do so to develop theories to understand and explain the presence of these businesses and the potential for modern slavery therein. We work with a range of partners to ensure our research has an applied focus and helps to support those exploited for their labour.

This project aims to further academic understanding of the scale and location of non-compliance and informality in the UK by mapping several sectors in UK regions and developing tools to extrapolate and showcase potential sites of non-compliant practice. Our wider research base around non-compliance demonstrates the presence of considerable labour market non-compliance that avoids regulation and is therefore harmful to workers and the UK's tax base. Acceptance or lack of action regarding this situation can and does lead to more egregious breaches of employment conditions. This report aims to show how labour market non-compliance as it currently exists must be tackled to reduce the risk and prevalence of modern slavery within the UK, that is, we argue that permissiveness in respect of labour market non-compliance may encourage entrepreneurs and managers to degrade workplace relations further towards modern slavery. More specifically, it seeks to examine how the Covid-19 pandemic may have impacted upon these non-compliant businesses and their workers, including vulnerabilities to modern slavery by:

a) identifying the neighbourhoods where such employment sites are most likely to be found.
b) establishing where the pandemic may have had the most significant economic impact, and whether these are the localities where the non-

compliant economy is most likely to be operating.

    c) whether the recovery of customer footfall has been slower in neighbourhoods where there is a greater presence of non-compliant employers.

The next section of the report outlines our rationale for undertaking the research and situates it within broader debates before presenting the data on the sectors and localities where our research was undertaken. After this, we focus on our attempts to provide a more comprehensive understanding of both the scale and distribution of non-compliance and any associated vulnerabilities to modern slavery at a neighbourhood level in England and how Covid-19 and its economic impacts may affect workers and businesses. This report concludes with a series of recommendations to national policy makers in BEIS and the Home Office, Government regulators and agencies and those working on the ground in local authorities, police forces and third sector organisations to ensure that UK workers are not exploited and put into positions that compromise their human rights.

What is labour market non-compliance, and how does it link to modern slavery?

Introduction

Non-compliant employers may choose to ignore the national minimum wage and/or associated employment rights to holiday pay. In addition, some employers ignore workplace health and safety protections, and environmental regulations. Workers, in turn, tolerate these degradations out of necessity, despite the denial of employee or worker status, associated insecurity, irregular working hours, coercive and exploitative remuneration (Clark and Colling, 2018, Clark, et.al, 2022a, Cioce, et. al. 2022). In addition, the Covid-19 pandemic has witnessed many non-compliant employers ignoring workplace social distancing and the provision of personal protection equipment for workers (Clark, et.al. 2020). Rather than following employment laws, regulations and codes of practice non-compliant employers impose alternative norms and values on employees that operate as combined form institutions (see below).

Labour market non-compliance as a route to modern slavery?

We set out to explore three sectors identified by regulators, enforcement agencies and NGOs with a high propensity for coercion and exploitation that may commence with or lead to modern slavery. For example, successive annual strategy documents produced by the Director of Labour Market Enforcement (2021:82-99) cite both hand car washes and nail bars as sectors at risk of significant labour market coercion, exploitation and modern slavery. In addition, together with other enforcement bodies the Director launched 'Operation Tacit' to investigate the significant presence of non-compliant garment workshops in Leicester.

As Skrivankova (2010) argues, exploitation exists on a continuum. This approach helps inform the challenge researchers face when tackling exploitation in the UK. The continuum runs from compliant employment practice through negligent practice where health and safety rules may not be followed to collusion between employers and employees in relation to wages, working hours and taxation or benefit payments. The continuum then accelerates to coercion and exploitation and severe labour abuse including modern slavery (see also DLME, 2021:6). The current project builds on WIP's wider research (Clark and Colling, 2018, Clark, et.al, 2022a, Cioce, et. al. 2022) and does so in three ways that generate new evidence; firstly, coercion, exploitation and modern slavery flow directly from sectoral socio-economic conditions that surround informal non-compliant business and associated employment practice across the UK. We argue that the

creation and apparently sustainable diffusion of these alternative regulatory environments condition and carry the potential for more problematic workplace practices that may enslave and exploit workers. Economic re-structuring expels some workers from formal regulation patterns; therein, non-compliant recruitment practice flows from employer strategic choice that enables competitive advantage by specifically exploiting vulnerabilities in particular groups of workers through coercive practice in the workplace including modern slavery offences. Strategic choice refers to actions by actors that define their own environment and field of operations, in this case labour market non-compliance, that operate beyond codified institutional rules enacted by the state. That is, these employers feel unrestrained by codified rules designed to ensure fair and reasonable treatment in the workplace.

A second contribution to new knowledge centres on alternative forms of non-compliant recruitment and associated employment practice that utilise uncodified context specific norms, values and beliefs that operate beyond formal institutions created by the state to codify employment laws. Context specific norms and values do though appear acceptable and legitimate to parties in specific circumstances. For example, in the gig economy sub-contracting of apps by legitimate workers to 'ghost' workers who may be undocumented is a common practice in food delivery where riders need to keep their app active when they are not working, but it does see legitimate riders condone and re-produce non-compliance (Mendonca, et. al. 2022, Gregory, 2021). The interplay between government policy approaches to labour market compliance and de-regulation and flexibility as legal and social norms provide the potential for formal institutional failure where the extant literature demonstrates a lack of enforcement is in evidence, for example over enforcement of the national minimum wage. Routes into non-compliant practice operate as normative culture bound communities of practice where shared and more frequently imposed alternative norms and values appear as socially constructed combined form institutions, that is those generated within a specific sector of non-compliant employment (Clark and Colling, 2018, Hammer and Plugor, 2019, Ram et. al. 2019, Vershinina et.al. 2018).

In a study of workers and entrepreneurs in forty-five workplaces, Clark and Colling (2018) found that hand car wash operatives expect, accept and tolerate coercive and exploitative employment for instrumental reasons. Therein different categories of workers, for example those who possess some labour market skills but accepted work at a hand car wash did so whilst they updated their qualifications or language skills at a local education or training provider. Many of these more connected workers who

possessed labour market skills paid their own passage to Britain and lived with friends and or family and their tenure at a hand car wash was relatively brief, up to eighteen months. Other car wash workers, commonly those from non-European Union nations such as Albania and former Soviet republics such as Kazakhstan, were less well connected, less well-versed in English and had little or no labour market human capital.

In terms of a potential to degrade towards modern slavery, the exploitation risks are present because these workers were often bonded to either car washes or specific car wash entrepreneurs who owned several workplaces to which workers were deployed. Less well-connected workers are likely to spend more time than others employed at car washes for several reasons; to pay off their passage –many were effectively bonded because they or family members in a country of origin had to repay labour market intermediaries or transnational gangmasters. In addition, less connected workers, many of whom were from rural locations, had few labour market skills and frequently overstayed their British entry documents and therefore found a transition into the legitimate economy difficult to achieve. By contrast, British-based migrant entrepreneurs in construction report that Ukrainian migrants display agency in the way they engage with non-compliant self-employment status, viewing their undocumented status as a transient one before securing documented legal status and more appropriate remuneration (Vershinina et al., 2018). Similarly, Hammer and Plugor (2016) illustrate that non-compliance is an embedded feature of small workshop garment manufacturing. Non-compliance follows on from the polces of buyers from lead firms that are designed to control production costs. These policies encourage the segmentation and separation of manufacturing units from workers that in turn leads to the elimination of workplaces in the labour process, and the replacement of these by small workshops or home working where labour market non-compliance is the norm, (Hammer and Plugor, 2019).

The Covid-19 pandemic has in this sector led to an expansion of non-compliant work and associated labour precarity in domestic households as one way of avoiding social distancing measures and the provision of personal protection equipment (Clark et.al. 2020). Therein entrepreneurs and owners of sub-contract workshops coerce and exploit locally embedded vulnerable workforces in workplaces characterized by sweated labour, work intensification and precariousness. Ram et. al. (2019) demonstrate that non-compliant employment practice is an embedded feature in otherwise compliant employers such as supermarkets, hospitality, and restaurants in Birmingham in the West Midlands. The last two references are significant because they demonstrate that labour market

coercion and exploitation in some circumstances may or may not coincide with or degrade into modern slavery in the workplace.

A third contribution to new knowledge from our research focusses on recruitment routes into non-compliant employment practices. Employers demonstrate strategic choice, that is they determine their own working environment that informs a range of socio-economic control mechanisms in specific sectors. The macro-economic contraction of occupied business units across the economy since the financial crisis and more recently since the onset of the Covid-19 pandemic inform an associated expulsion of businesses and capital resources from formalized business practice across a variety of business sectors. Sassen (2014) describes the association between re-structuring, de-regulation, advances in technology (internet retailing) and rejections of technology (greater labour intensity in the labour process) as an expulsion of capital and labour from formalized patterns of regulation, in the case of labour sometimes on a transnational basis. For example, the decline of bespoke city centre shops such as newsagents, dry cleaners and tobacconists has witnessed the arrival of pop-up and more permanent nail bars. Similarly, the entry of supermarkets into petrol retailing has seen many suburban and urban roadside petrol stations re-purposed as hand car washes. In turn, at the micro level, contraction of the compliant economy expels some workers into the non-compliant cash economy, for example, those in small unit garment manufacturing workshops. Non-compliant employers or labour market intermediaries who place labour in particular sectors can capture, or re-shape employment practice previously overseen by state regulation to degrade, displace or exploit legitimate actors and processes. This displacement enables those actors who capture or dominate a specific sector to construct new forms of practice and alternative regulation that often mimics the business practices of legitimate operators, but which nevertheless may entertain aspects of modern slavery (Cioce et. al. 2022).

To summarise, our three contributions aim to extend understanding of the exploitation continuum and begin to tackle our research question on the association between the scale and distribution of labour exploitation and how the pandemic reinforces coercion, exploitation, and potentially modern slavery in defined sectors, it is necessary to understand sectoral conditions that inform employer opportunism. Moreover, coercive employer opportunism that may lead to modern slavery in the workplace indicates a failure of institutional regulation in terms of compliance, enforcement, and intelligence. These failures enable coercion, exploitation and modern slavery and sustain locally regulated recruitment and recruitment routes into defined sectors.

Labour market non-compliance, modern slavery and the Covid-19 pandemic

Investigating the scale and location of non-compliance and modern slavery: Our methodological approach

We utilise a mixture of industrial relations, criminological and spatial methodologies, and analytical approaches to enhance our understanding of work and how it interacts with place. Application of traditional industrial relations research approaches to acquiring information (e.g., case studies and surveys) enabled us to develop an understanding of broadly defined work relations in hand car washes and small unit garment workshops and to a lesser extent nail bars. In addition to these studies, as we outline below, we mapped the location of these workplaces. This is necessary because there is definitional ambiguity and lack of detailed data on the scale and location of businesses beyond the regulatory requirements of the state that make it much more difficult to understand the scale of the challenge that we as researchers face in a project such as this one. What we do know is that the scale of non-compliance is significant; in 2016 an authoritative study estimated that non-compliant employers using non-compliant labour practices annually generate 10%-12% of Britain's Gross Domestic Product, where many may choose to use coercive strategies (Williams and Schneider, 2016). Non-compliant employers engage two and a half million workers, equal to 9% of the legitimate private sector working population generating £223 billion per annum (ACCA, 2017). However, the location of these sectors, the scope of non-compliance and any association with modern slavery is not well mapped. Our own work has highlighted that labour market non-compliance is widespread in the hand car wash sector, for example, Clark and Colling (2018) found minimum wage underpayments in all 45 workplaces in the study.

The absence of comprehensive data highlights the complex challenge faced by researchers but also charts a way forward to develop an understanding of the sectors recognised for non-compliance and the potential for modern slavery offences. To do so we have mapped the linkages and pathways between routine labour market non-compliance and more extreme and pro-active forms of non-compliance which when left unchecked can act as opportunity enablers for modern slavery and wider abuses within work organisations to develop. Our wider research highlights re-shaped regulatory practices previously overseen by state regulation but now beyond this regulation. This displacement enables those actors who dominate defined sectors to construct new forms of practice and alternative regulation that often mimics the business practices of legitimate operators, for example, in the use of professional looking shop fronts and sophisticated price boards for services.

In order to specifically evaluate the potential impact of the Covid-19 pandemic on non-compliance and modern slavery, we have adopted the following empirical approach. Firstly, using Google Street View, we have mapped the location of hand car washes and nail bars across neighbourhoods within the East Midlands, Greater Manchester and Birmingham. Secondly, we have identified those neighbourhoods where non-compliant employment sites are more likely to be concentrated by drawing upon our other research that has developed predictive neighbourhood-level maps based upon the identification of the risk and protective factors that shape the presence of hand car washes and nail bars across England (Clark and Hunter, 2022).

Secondly, to move beyond the hand car wash and nail bar sectors, we outline an Informal Economy Index (IEI) that utilises the over-representation of population groups found working within the non-compliant informal economy to create a means of predicting the presence of informal economy sites (across all sectors) within all neighbourhoods in England. This enables us to identify non-compliant informal economy 'rich' and 'poor' neighbourhoods across the country. Thirdly, we use a dual approach to evaluate the impact of the Covid-19 pandemic on non-compliant employment sites that are potentially vulnerable to modern slavery. Using existing evidence on the economic sectors that have experienced the biggest economic impact arising from the Covid-19 pandemic, we have created a Covid Economic Impact Index (CEII) that identifies those neighbourhoods containing economic sectors where the impact of the pandemic is likely to be greatest. We have then examined whether the spatial distribution of these locations matches those places where hand car washes, nail bars and other informal economy sites are also located.

Finally, drawing upon Covid-19 pandemic Google mobility data, we have examined whether hand car washes, nail bars and other informal economy sites are disproportionately located within those areas that were:

a) the subject of the initial local lockdowns; and
b) in higher lockdown tiers when England has a whole moved to the respective three-tier and four-tier nationwide responses to the pandemic.

We then complete the empirical analysis, by examining whether the mobility patterns pertinent to the use of hand car washes, nail bars and other informal economy sites have recovered to a greater or lesser extent within non-conformity and modern slavery 'rich' neighbourhoods (based upon our hand car wash and nail bar indices, and our IEI).

Using Google Street View to identify the location of hand car washes and nail bars

The only official data source for identifying the presence of different types of businesses within each neighbourhood across England is the Ordnance Survey's Points of Interest (POI) database. Drawing upon data provided by a range of official and commercial organisations including the Local Data Company and 118 Information, the POI database provides geo-referenced quarterly data on the presence of both hand car washes and nail bars. Analysis of the POI data in several locations quickly identified the absence of hand car washes and nail bars that research for this project located. The absence of these from the POI database is in part a result of the 'high street' only focuses of the Local Data Company, and perhaps the unwillingness of certain employers to seek advertising their presence on the 118 Information data platform. We therefore developed an innovative methodology to track down the presence of the missing hand car washes and nail bars by first using Google Maps and Facebook to identify the presence of businesses within these sectors advertising their presence. Using Google Street View, our researchers then mapped all neighbourhoods within different local authority areas by virtually travelling down every street searching for hand car washes and nail bars. We have currently mapped hand car washes within 38% of all neighbourhoods across England (including all the Core Cities), whilst completing the same exercise for nail bars in relation to all local authority areas in the East Midlands, Greater Manchester and Birmingham.

Developing our predictive hand car wash and nail bar indices

Drawing upon the POI data in relation to other types of business premises, as well as official data sources such as the ONS 2011 Census, ONS 2011 Area Classifications, and English Indices of Deprivation 2019, we constructed a database covering all neighbourhoods across England that included socio-demographic, economic and built environment contextual factors likely to shape the presence of hand car washes and nail bars based upon existing sources. To improve on these sources our fieldwork identifies the location of these employment sites. After identifying neighbourhoods containing at least one hand car wash, we employed binary logistic regression analysis to then identify factors that increase or decrease the likelihood of a hand car wash within a neighbourhood.

In relation to hand car washes, we identified risk factors that primarily centre upon the presence of other connected forms of economic activity including vehicle repairs, second-hand car sales and petrol stations

alongside the presence of A or B roads passing through neighbourhoods. Neighbourhood characteristics that protect against the presence of a hand car wash include greater educational qualifications among the population, more affluent residential areas containing detached and semi-detached properties, and greater student households.   This last characteristic supports our working assumption derived from our mapping fieldwork observations that hand car washes are often located in neighbourhoods that have experienced an economic downturn and where there are no major economic drivers of change because the redevelopment of brown field sites in the form of privately managed student accommodation (and hence greater numbers of student households) points to the economic opportunities for landowners and property developers to permanently transform sites that might otherwise provide temporary locations for hand car washes (e.g., closed petrol stations and former pubs). The presence or absence of factors that shape the location presence of nail bars are somewhat different. Nail bars are more likely to be found in neighbourhoods with higher numbers of hair and beauty salons, charity shops, restaurants, shoe stores, chemists or pharmacies, petrol stations, and more cohabiting households with children. In contrast, the presence of terraced and social housing, higher median house prices and households with three or more cars is more likely to reduce the presence of nail bars within specific localities.

Employing the findings from our empirical analysis, we have then applied statistically significant odds ratios to identify the relative importance of each (risk and protective) factor as weights, and then applied these to the relative presence of the identified characteristics within each neighbourhood. Odds ratios identify how the chances of finding a hand car wash within a neighbourhood is increased or decreased by the presence of a specific explanatory factor within that same neighbourhood. An odds ratio greater than 1 identifies a factor as increasing the risk of a hand car wash being located within a neighbourhood, whereas an odds ratio lower than 1 signifies that the factor in question acts as a protective mechanism by reducing the chances of a hand car wash being found within a neighbourhood. The value of an odds ratio can therefore be employed to identify how more or less important a specific factor is in shaping the spatial distribution of hand car washes. By combining the respective values for each characteristic into a single overarching score, we initially constructed a hand car wash index that predicts the likely presence of there being at least a single hand car wash within each neighbourhood across England. We then repeated this analytical process in relation to nail bars to develop a separate predictive nail bar index.

For illustrative purposes, Figures 1 and 2 (below and overleaf) present the respective hand car wash and nail bar predictive indices for neighbourhoods (mapped at the Lower Super Output Area level [LSOA[1]]) across Greater Manchester and surrounding localities. The data is mapped at the decile level (with decile 1=lowest level of predicted hand car washes/ nails bars, and decile 10= lowest level of predicted hand car washes/nails bars). The data presented in the respective figures illustrates two important issues. Firstly, the predicted location of hand car washes is much more spatially concentrated than the predicted location of nail bars. Secondly, the neighbourhoods with a high predicted hand car wash presence are not the same locations as those for which there is a greater predicted level of nail bars. Indeed, the correlation coefficient value for the relationship between the predicted level of hand car washes and nail bars is only 0.22 across all neighbourhoods in England. Whilst this relationship is statistically significant, the absence of a stronger relationship in part reflects the different opportunity structures required for the presence of hand car washes and nail bars. However, it also points crucially to the existence of the alternative distribution of non-compliant employment sites and venues of modern slavery within specific economic sectors across different neighbourhood locations.

Figure 1: Predicted location of hand car washes across neighbourhoods within Greater Manchester and surrounding areas based upon Hand Car Wash Index

1 Lower Super Output Areas are the second lowest form of statistical geographical unit created by the Office for National Statistics for the identification of neighbourhoods across the United Kingdom for the purposes of the Census. The number and size of these is shaped by population and household thresholds. There are currently 34,753 Lower Super Output Areas across England and Wales. For more information on these and other forms of statistical geography visit here.
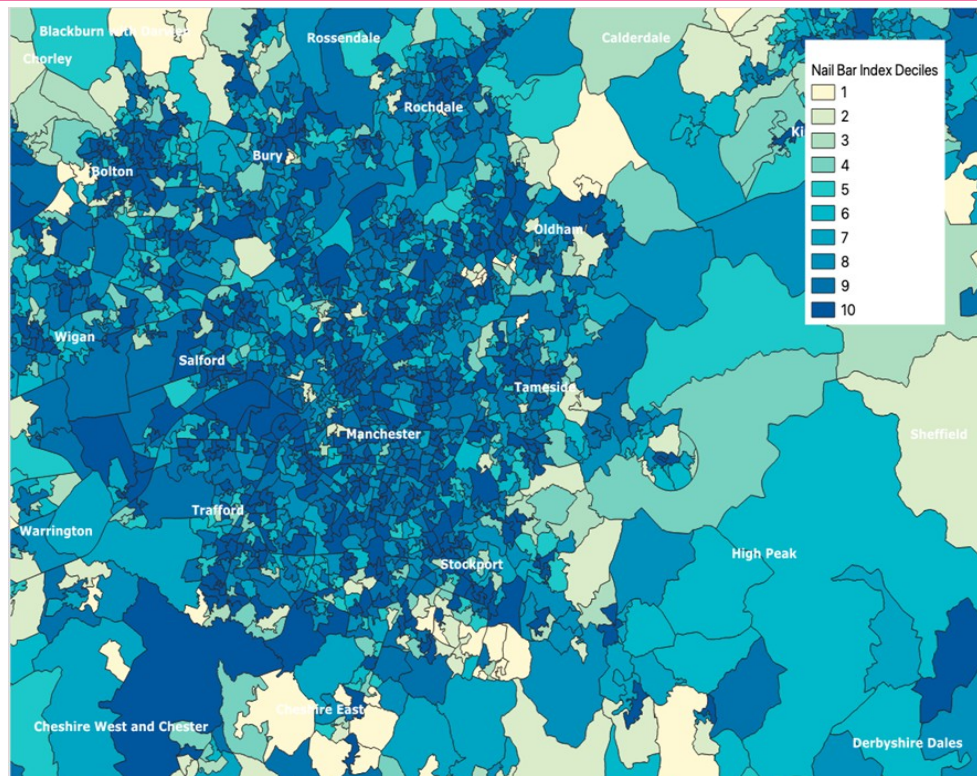
Figure 2: Predicted location of nail bars across neighbourhoods within Greater Manchester and surrounding areas based upon Nail Bar Index

Developing an Informal Economy Index (IEI) to identify the scale and location of non-compliance at the neighbourhood level in England across all informal economy sectors

The analysis presented above focused upon the hand car wash and nail bar sectors. To extend the reach of our neighbourhood proxies' approach, we have also sought to develop an Informal Economy Index (IEI) that predicts the presence of employment within all sectors of the informal economy across neighbourhoods in England. The methodological approach employed here is different from that utilised to develop our hand car wash and nail bar indices above. The IEI is constructed by concentrating on the over-representation within specific neighbourhoods of population groups identified within   the existing literature as typical participants in a range of alternative informal economy sectors.

Drawing on findings from the extant literature, for example, Clark et. al. 2022b, we utilised fourteen indicators based upon official data sources to identify the greater presence of population groups within each neighbourhood across England that were more likely to be found working in the informal economy. These indicators include average net income after housing costs (ONS Income Estimates for small areas, England and Wales), households in poverty after housing costs (ONS Households in Poverty estimates), average mean private sector rents (ONS Private Rental Market statistics), households living in temporary accommodation (DLUHC

Homelessness Statistics), households experiencing break-ups due to divorce or separation (ONS Census 2011), children living in deprivation (DLUHC Indices of Deprivation 2019), economically active individuals with disabilities (ONS Annual Population Survey), resettled asylum seekers (Home Office Immigration Statistics 2020), individuals in receipt of job seekers allowance aged 16-64, 18-24 and 50 plus (NOMIS Jobseekers Allowance data), and those with no, or only Level One, qualifications (ONS Census 2011), and neighbourhood-level population churn (CDRC Residential Mobility Index). The data for each of the fourteen indicators was standardised to account for the different scales and units of measurement, and then the respective z-scores for each indicator were combined to create a single index that measures the relative over- or under-representation of the respective population characteristics within each neighbourhood. There is no existing evidence on the relative importance of each population characteristic as a driver of employment in the informal economy within the literature. In this context, we have been unable to weight the respective population characteristics in constructing our IEI and have treated each factor as accruing the same importance.

Figure 3 (overleaf) displays the spatial distribution of the predicted levels of employment within the informal economy across neighbourhoods within Greater Manchester and surrounding areas based upon our IEI. As might be expected, the neighbourhoods where the IEI suggests higher levels of informal economy employment are in the former industrial, manufacturing and textile areas of Bolton, Bury, Manchester, Oldham, Salford, and Stockport. In contrast, there are much lower levels of predicted informal economy employment within the more affluent neighbourhoods in Trafford, and the rural areas to the South, East and North-East of the Greater Manchester conurbation. The spatial concentration of hand car washes, nail bars, and other informal economy sectors provides an opportunity for regulatory agencies to shift from an intelligence-led to a geographically based model of intervention. Access to wider data sources beyond this study from our research centre has already enabled several regulatory agencies such as the Gangmasters and Labour Abuse Authority, HMRC National Minimum Wage Team, and the National Crime Agency to pursue this new type of approach. All three enforcement agencies suggested to us that there is a considerable risk of the least compliant workplaces degrading further towards the application of workplace practices that accord with modern slavery, for example, labour bondage.
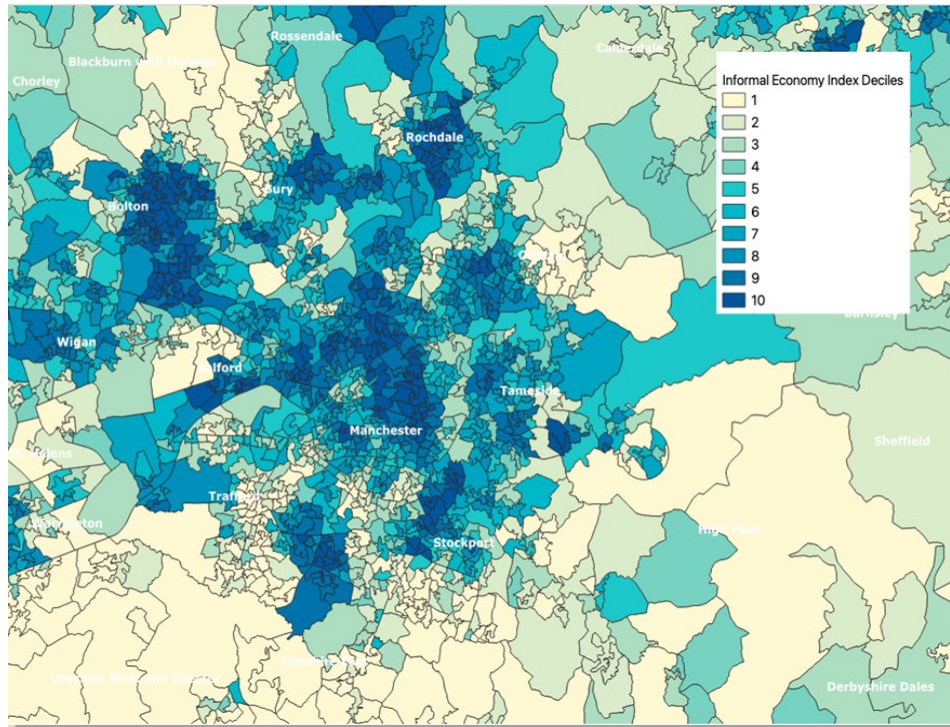
Figure 3: Predicted employment within the informal economy across neighbourhoods within Greater Manchester and surrounding areas based upon the Informal Economy Index (IEI)

Evaluating the impact of the Covid-19 pandemic on the non-compliant economy

Introduction

Having outlined the development of our predictive hand car wash, nail bar, and informal economy indices, the final substantive section of the report now moves on to provide an empirical evaluation of the likely impact of the Covid-19 pandemic upon the non-compliant economy and location of modern slavery practices. This is undertaken in three stages. Firstly, we outline the development of our Covid Economic Impact Index (CEII) which identifies at the neighbourhood level across England those localities where the pandemic is likely to have exerted the biggest economic impact based upon the structure of the local economy. Secondly, we examine whether predicted hand car washes, nail bars and other forms of informal economy employment are predominantly located within areas that were subject to either local lockdowns – or were placed in higher tiers once local lockdowns were abandoned in favour of national tier approaches. Finally, using Google Covid-19 mobility data, we examine whether the return of localities to their pre-Covid-19 state has been slower within neighbourhoods which are more likely to be the location of higher employment levels within hand car washes, nail bars and other informal economy sectors.

We hypothesised that the economic impact of the pandemic would create a series of changes and a worsening of conditions. Our engagement with enforcement agencies on site visits prior to the pandemic with regional organised crime units strengthened our knowledge of the poor pay and conditions of workers in hand car washes where poor weather or slow trade created a significant decline in daily pay. The government-imposed lockdowns of 2020 and 2021 meant that we were unable to undertake workplace shadowing visits with regulatory partners to further confirm our evidence on the conditions of workers identified as at risk of exploitation. This required us to take a different tack to understand how Covid-19 would be affecting those workers in our identified sectors. Whilst many sectors we studied closed during the first national lockdown we saw through small scale observations and partner reports that some sectors (garment sites and hand car wash businesses) remaining open to meet demand for orders due to the impacts of the global supply chain and customer requests. As a Research Centre we were concerned with workers activity within these businesses but more so by their precariousness created by household conditions and the impact they would face from the non-payment of wages. The informal nature of many of these businesses meant that workers were unlikely to secure furlough pay and their living quarters often in houses of multiple occupation linked to their employment reduced their ability to

shield or isolate from individuals with Covid-19. To help to understand the challenges facing workers working in the UK without the ability to interview or engage workers meant that we developed a second index to highlight areas of the UK most affected by the economic impacts of the pandemic.

Identifying the impact of the Covid-19 pandemic at the neighbourhood level through the development of a Covid Economic Impact Index (CEII)

In order to measure the potential economic impact of the Covid-19 pandemic at the neighbourhood level through the construction of our CEII, we adopted the same broad methodological 'jobs in risky economic sectors' approach set out by Enenkel (2020), but with a number of modifications. Utilising Enenkel's evidence on the economic sectors most likely to be impacted upon by the measures put in place to tackle the Covid-19 pandemic (see Table 1 overleaf), our CEII is based upon identifying the over- and under-representation of these economic sectors within specific neighbourhoods. By identifying those localities where a combined greater proportion of these different economic sectors are located, we can examine the spatial distribution of the potential economic impact of the Covid-19 pandemic.

We have drawn upon data from the ONS Business Register and Employment Survey (BRES) that identifies the number of jobs within each economic sector in 2019 (i.e., the period immediately prior to the Covid-19 pandemic) at the LSOA level. The BRES is a survey of employers which identifies the number of jobs held by employees on a full-time and part-time basis within different economic sectors within specific localities (based upon the 5-digit SIC2007 code). Crucially this data records the workplace structure of neighbourhoods rather than the occupational status of area residents who may be employed in other neighbourhoods, towns or cities.

The analysis undertaken by Enenkel (2020) is designed to predict the immediate future impact of the Covid-19 pandemic upon different economic sectors. In order to ensure that the CEII contains both a predictive and a real impact focus, we have additionally drawn upon furlough   data from HMRC Coronavirus Job Retention Scheme statistics (HMRC, 2021) to weight the different economic sectors by the average percentage of eligible employees within that sector who were furloughed between June 2020 and May 2021. This ensures that the scores built into the CEII relating to each economic sector contain elements of both the Enenkel risk ratings and differences in furlough practice across different economic sectors.

Unaffected or higher demand	Affected	Vulnerable	Very vulnerable
• Food and essential retail • Healthcare and related services • Chemicals, pharmaceuticals, and medical equipment • New leisure activities (computer games, gardening, children's toys) • Support business services such as cleaning services or delivery • School education • Public administration and third sector	• Business services (business consulting, public relations, etc.) • Insurance • Banking and financial services • Media • Forestry and paper • Construction • IT services and telecommunication • Support business services such as call centres • Electronics and electrical equipment • Higher education • Freight transportation • Textiles • Food manufacturing (including agriculture)	• Retail and wholesale (excluding food, drugs or other 'demanded products') • Non-metallic minerals • Basic metals and metal products • Rubber and plastics • Machinery and equipment • Transport (with air and freight transportation) • Film and video production • Mining	• Fossil fuel producers and distributors • Automotive and parts (whole value chains including tyres) • Tourism, and business travel • Leisure (including sports activities and amusement parks, operation of arts facilities, etc.) • Aviation • Services that cannot be performed at home or ordered online, nor be postponed (e.g., hair and beauty salons)

Table 1: Impact of Covid-19 pandemic upon different economic sectors according to Centre for Cities analysis (Enenkel, 2020)

Analysis of the furlough data at the local authority level has also revealed significant spatial variations in the Government's job retention scheme uptake by employers. On average, 11% of eligible jobs were furloughed across local authority areas between the end of July 2020 and the end of June 2021. However, this varied from 26% in Crawley to 10% in Boston. Therefore, we have added weights into the construction of the CEII that take account of differential levels of furlough uptake across different local authority areas. Data availability prevents accounting for differentials in furlough uptake by economic sector at the local authority level.

Therefore, the finalised methodology for constructing the CEII is as follows. Firstly, the proportion of national jobs within each economic sector located

in each LSOA across England was calculated using the 2019 BRES data. Secondly, each employment proportion was then weighted by the relevant Enenkel (2020) Covid-19 economic impact category (i.e., 'unaffected or higher demand'=1, 'affected'=2, 'vulnerable'=3, or 'very vulnerable'=4) for each neighbourhood. This ensures that neighbourhoods containing a greater proportion of employment in high-risk economic sectors are given a higher score than those where low-risk economic sector employment is concentrated. Thirdly, these sector-weighted job proportions were then weighted again by the average proportion of furloughed employments within each economic sector between the end of July 2020 and the end of June 2021. These initial scores have then been standardised (i.e., transformed into Z scores) to form a final CEII score for each LSOA that enables comparison with the corresponding IEI scores for each of these localities.

Figure 5 (below) presents our Covid Economic Impact Index mapped at the neighbourhood level across localities within Greater Manchester and surrounding areas. Unlike the spatial distribution of our hand car wash and informal economy indices, the predicted economic impact of the Covid-19 pandemic exhibits a different spatial pattern. Firstly, it is noticeable that areas likely to experience the greatest level of impact are prevalent within both rural and urban localities (reflecting the impact the pandemic has had both upon tourism and agriculture sectors). Secondly, the predicted economic impact is concentrated in much smaller clusters of neighbourhoods – and unlike the presence of hand car washes, nail bars and the informal economy is not just confined to the more deprived former industrial, manufacturing and textile areas within the region.

Figure 5: Predicted economic impact of the Covid-19 pandemic at the neighbourhood level based upon the economic structure of local economies and the take up of the furlough scheme across neighbourhoods in Greater Manchester and surrounding areas (CEII)

In terms of our first approach to examining the impact of the Covid-19 pandemic upon non-compliance and modern slavery, we can now examine the relationship between our hand car wash, nail bar, informal economy, and Covid-19 economic impact indices across all neighbourhoods in England. Table 2 (below) presents correlation coefficients for the relationship between each of the respective indices. There is a moderately significant positive correlation (0.22) between the predicted presence of hand car washes and nail bars – but the absence of a very close relationship points to the different spatial location (and the factors that shape the presence of) hand car washes and nail bars. There is a much stronger positive significant correlation (0.47) between the predicted presence of hand car washes and predicted presence of informal economy employment – whilst the correlation between the predicted presence of nail bars and informal economy employment is significant but exhibits a very weak positive relationship.

	Hand car wash index	Nail bar index	Informal economy index	Covid-19 economic impact index
Hand car wash index		0.22 ***	0.47 ***	-.00 NS
Nail bar index			0.14 ***	.01*
Informal economy index				-.01 NS

Table 2: Correlation coefficients for the relationship between the hand car wash, nail bar, informal economy, and Covid-19 economic impact indices across neighbourhoods in England (n=32,842)

There is no significant correlation between the hand car wash, nail bar, and informal economy indices and the Covid-19 economic impact indices. This means that those neighbourhoods that are likely to have experienced the biggest economic impact due to the economic sector make-up of their local economy are not automatically localities with a likely high presence of non-compliant businesses and sites of modern slavery. This finding points to the potential danger of national and local initiatives designed to aid the Covid-19 pandemic economic recovery being correctly targeted at those neighbourhoods where help is most needed – but potentially missing those localities where non-compliant businesses and modern slavery are most prevalent and where disruption to non-compliant businesses and workers may go unaddressed.

The prevalence of non-compliance and modern slavery within localities subject to different lockdown measures during the Covid-19 pandemic

Our second substantive analysis of the potential impact of the Covid-19 pandemic upon sites of non-compliance and modern slavery is based upon examining the extent to which the prevalence of these types of

employment are predominantly located within neighbourhoods across England that were subject to different government responses to the Covid-19 pandemic. We examine this issue firstly in relation to the local lockdowns that were initially imposed by central government upon specific local authority areas between July and October 2020 (which included Leicester, Blaby, Charnwood and Oadby & Wigston; Luton; Blackburn-with-Darwen; Bradford; all local authority areas in Greater Manchester; Burnley, Hyndburn, Pendle and Rossendale in Lancashire; Calderdale and Kirklees in West Yorkshire; Birmingham, Sandwell and Solihull in the West Midlands; and all local authority areas within North-East England). We then repeated this analytical exercise in relation to the nationwide tiered responses in different parts of England implemented during October-November 2020 ('first tiers') – and then November 2020-January 2021 ('second tiers').

Table 3 (below) presents the mean standardised scores for our respective hand car wash, nail bar, informal economy, and covid economic impact indices across neighbourhoods based upon their local lockdown status. The difference between the mean Z scores in lockdown and non-lockdown neighbourhoods in relation to the hand car wash, nail bar, and informal economy indices is significantly higher based upon an independent samples t-test. This means that any resulting changes to the operation of non-compliant business, and circumstances of workers, arising from the Covid-19 pandemic may have been disproportionately concentrated within neighbourhoods within local authority areas that were subject to local lockdowns. There was no statistically significant difference between the predicted economic impact of the Covid-19 pandemic across neighbourhoods within lockdown and non-lockdown areas. Thus, whilst non-compliant businesses may have been disproportionately present within lockdown areas, the wider impact of the Covid-19 pandemic upon the local economy was not disproportionately concentrated within neighbourhoods that experienced local lockdowns. This means that any economic drivers that stimulate the presence of non-compliant businesses and sites of modern slavery may not have deteriorated markedly within local lockdown neighbourhoods – and therefore created the potential for the greater future presence of non-compliant businesses and sites of modern slavery.

Indicator:	Mean Z score in lockdown neighbourhoods (n=7,134)	Mean Z score in non-lockdown neighbourhoods (n=25,710)
Hand car wash index	0.18 ***	-0.49
Nail bar index	0.12 ***	-0.34
Informal economy index	0.33 ***	-0.92
Covid economic impact index	0.01	-0.01

*** Statistically significant at p<=0.005
Table 3: Mean hand car wash index, nail bar index, informal economy index, and covid economic impact index Z scores broken down by areas subject to local lockdown during the Covid-19 pandemic in England.

Table 4 (below) presents the mean standardised scores for our respective hand car wash, nail bar, informal economy, and covid economic impact indices across neighbourhoods based upon their 'first tier' tiered status (which was introduced directly after the local lockdown period between October and November 2020). Based upon an analysis of variance test, the nail bar and informal economy mean Z scores are significantly higher in neighbourhoods within Tier 2 and Tier 3 local authorities when compared to localities within Tier 1 local authority areas. As with the case in relation to the analysis of local lockdown areas, these results suggest the much greater presence of non-compliant businesses and sites of modern slavery within neighbourhoods that were located within Tier 2 and Tier 3 local authority areas that were subject to more stringent measures. In terms of the impact of the Covid-19 pandemic upon the local economy, there was however no statistically significant difference across neighbourhoods located within Tier 1, 2 and 3 local authority areas.

Indicator:	Mean Z score in Tier 1 neighbourhoods (n=14,445)	Mean Z score in Tier 2 neighbourhoods (n=13,207)	Mean Z score in Tier 3 neighbourhoods (n=5,192)
Hand car wash index	-0.04	-0.03	0.19
Nail bar index	-2.31	2.21 ***	0.81 ***
Informal economy index	-0.12	0.10 ***	0.10 ***
Covid economic impact index	0.01	0.01	-0.03

*** Statistically significantly higher than Tier 1 mean at p<=0.005

Table 4: Mean hand car wash index, nail bar index, informal economy index, and covid economic impact index Z scores broken down by areas subject to different tiers during first tiered response to the Covid-19 pandemic in

Indicator:	Mean Z score in Tier 3# neighbourhoods (n=7,009)	Mean Z score in Tier 4 neighbourhoods (n=25,834)
Hand car wash index	-0.25	0.07 ***
Nail bar index	-1.37	0.37 ***
Informal economy index	0.20 ***	-0.01
Covid economic impact index	0.01	-0.02

Results have only been presented for Tier 3 and Tier 4 neighbourhoods because no local authorities were placed in Tier 2 – and only one local authority area (Isles of Scilly) was placed in Tier 1.
*** Statistically significantly higher at p<=0.005

Table 5: Mean hand car wash index, nail bar index, informal economy index, and covid economic impact index Z scores broken down by areas subject to different tiers during second tiered response to the Covid-19

Table 5 (above) replicates the same approach, but this time presents the mean standardised scores for our respective hand car wash, nail bar, informal economy, and covid economic impact indices across neighbourhoods based upon their 'second tier' tiered status (which was introduced directly after the local lockdown period between October and November 2020). The results here are slightly different. Neighbourhoods in

Tier 4 local authorities which had the most stringent restrictions imposed upon them had significantly higher predicted hand car wash and nail bar presence when compared to their counterpart neighbourhoods in Tier 3 local authority areas. In contrast, predicted employment levels within the informal economy were much higher within neighbourhoods across Tier 3 local authority areas (many of which had been the subject of the local lockdowns that had preceded to move to the nationwide tiered response). In terms of the impact of the Covid-19 pandemic upon the local economy, there is however no statistically significant difference across neighbourhoods located within Tier 3 and Tier 4 local authority areas.

Changes in potential customers for hand car washes, nail bars and other informal economy sectors based upon Google Covid-19 mobility data

The Covid-19 pandemic, and the government responses in the form of local and national lockdowns, witnessed substantial periods when most employers were forced to close, and a significant proportion of their employees were furloughed or required to work from home. This resulted in a substantial disruption to movement patterns and location for both residents and workers. Hand car washes and nail bars (along with many other formal and informal economy sectors) are highly dependent upon footfall and public or private transport use to generate customers for their services – whether these be either in terms of potential clients 'discovering' the presence of, for example, a hand car wash or nail bar, or simply returning to an outlet which they have chosen to subsequently patronise. Our final approach to analysing the impact of the Covid-19 pandemic upon non-compliant businesses and sites of modern slavery examines whether there are significant differences in customer movements within non-compliant and modern slavery 'rich' and 'poor' localities.

As a contribution to aiding public health responses to the Covid-19 pandemic, Google created community mobility reports and data identifying changes at the local authority level against a pre-pandemic February 2020 baseline in population movement in relation to retail and recreation, groceries and pharmacies, parks, transport hubs, workplaces and residential locations. Therefore, we have utilised the Google mobility data relating to retail and recreation, groceries and pharmacies, transport hubs and workplaces as proxies for changes in customer movement.   This data has been broken down into a series of different time periods:

  a)   prior to the implementation of local lockdowns.
  b)   local lockdowns.

c) 'first tiers.

d) 'second tiers.

e) national lockdown (after the abandonment of the tier systems); and

f) the post national lockdown period. The Google Covid-19 mobility data is only available at the local authority level in England.

In order to undertake the required analysis, we have therefore converted the respective hand car wash, nail bar, informal economy and Covid-19 economic impact indices standardised scores at the neighbourhood level into mean local authority level standardised values.

Top 10 Local Authority areas

Rank	Hand car wash index	Nail bar index	Informal economy index	Covid-19 economic impact index
1	Hyndburn	Westminster	Redcar and Cleveland	Mendip
2	Rossendale	Camden	Kingston upon Hull	Isles of Scilly
3	Barrow-in-Furness	Islington	Hackney	Derbyshire Dales
4	Dorset	Hammersmith and Fulham	Blackpool	Eden
5	Burnley	Manchester	Haringey	Ryedale
6	Pendle	Trafford	Tower Hamlets	South Lakeland
7	Hastings	Stockport	Norwich	Dorset
8	North Northamptonshire	Bury	Newham	County Durham
9	Blackpool	Kensington and Chelsea	Birmingham	Somerset West and Taunton
10	Hyndburn	Tameside	Barking and Dagenham	Great Yarmouth

Table 6a: Top ten local authority areas across England by mean hand car wash index, nail bar index, informal economy index, and covid economic impact index Z-scores (n=310) *

Bottom 10 Local Authority areas

Rank	Hand car wash index	Nail bar index	Informal economy index	Covid-19 economic impact index
301	Bromley	Vale of White Horse	Vale of White Horse	Plymouth
302	Cheshire East	South Oxfordshire	South Cambridgeshire	Hart
303	Wiltshire	Mole Valley	Elmbridge	Stockton-on-Tees
304	South Holland	Dorset	Winchester	Southampton
305	Wokingham	Winchester	Waverley	Reading
306	South Norfolk	East Hampshire	Buckinghamshire	Harlow
307	Kensington and Chelsea	Elmbridge	South Oxfordshire	Ipswich
308	Shropshire	Test Valley	St Albans	Stevenage
309	Herefordshire	Crawley	Wokingham	Middlesbrough
310	Isles of Scilly	Waverley	Hart	North Northamptonshire

Table 6b: Bottom ten local authority areas across England by mean hand car wash index, nail bar index, informal economy index, and covid economic impact index Z-scores (n=310) *

Tables 6a and 6b (above) identifies the top and bottom 10 ranked local authority areas across England based upon the mean standardised scores for each of the respective four indices. Local authority areas with a high predicted presence of hand car washes are concentrated within former traditional industrial areas (with these including agriculture and tourism as well as manufacturing) – whilst localities with low predicted numbers of hand car washes are concentrated with affluent (and predominantly rural) localities. The top 10 local authority areas in terms of predicted nail bar presence are all major population and service sector locations, whilst the bottom 10 are once again characterised by their relative affluence and Southern England location. Former traditional industrial areas either in London, the Midlands or Northern England dominate the top 10 local authority areas with respect to the predicted presence of informal economy employment – whilst many of the same local authorities that feature within the bottom 10 for the predicted presence of nail bars also feature within this category in respect of the predicted presence of the informal economy. Finally, in relation to the predicted impact of the Covid-19 pandemic on the local economy, the top 10 local authority areas are tourism and agriculture localities. In contrast, the bottom 10 local authority areas feature localities that function as regional centres, with either a strong public service organisation presence or the relative absence of those elements of the service sectors most likely to be impacted upon by the pandemic.

By examining the correlation coefficients for the relationship between the hand car wash, nail bar, and informal economy indices on the one hand, and the mean difference in the different dimensions of population movement across different time periods, it is possible to examine whether a return to the pre-pandemic baseline has been more prevalent within non-compliant business 'rich' or 'poor' local authority areas. Tables 5.7a to 5.7d (below and overleaf) present the correlation coefficients for the relationship between each of the respective indices broken down by the respective Covid-19 pandemic time periods under consideration. In these tables, a positive correlation indicates a larger return (or even greater overall level) of customer footfall than the pre-pandemic baseline in neighbourhoods with higher predicted numbers of non-compliant businesses. A negative correlation, however, indicates a larger reduction in customer footfall levels compared to the pre-pandemic base line in neighbourhoods containing higher predicted numbers of non-compliant businesses.

Time period:	Hand car wash index	Nail bar index	Informal economy index
Prior to local lockdowns	0.16 ***	-0.26 ***	0.04 NS
Local lockdowns	0.21 ***	-0.26 ***	0.23 NS
'First tiers'	0.20 ***	-0.34 ***	0.01 NS
'Second tiers'	0.21 ***	-0.24 ***	0.10 NS
National lockdown	0.22 ***	-0.25 ***	.07 NS
Post lockdown	0.15 **	-0.33 ***	-0.5 NS

*** Statistically significant at $p<=0.001$, ** Statistically significant at $p<=0.01$, * Statistically significant at $p<=0.05$

Table 7a: Correlation coefficients for the relationship between the mean standardised scores for non-compliant business indices and mean differences from pre-pandemic population movements in relation to Google Covid-19 mobility data relating to GROCERIES AND PHARMACIES at the local authority level in England (n=310)

Time period:	Hand car wash index	Nail bar index	Informal economy index
Prior to local lockdowns	0.26 ***	-0.28 ***	0.13 *
Local lockdowns	0.14 ***	-0.37 ***	- 0.12 *
'First tiers'	0.09 NS	-0.48 ***	-0.21 ***
'Second tiers'	0.19 ***	-0.34 ***	.06 NS
National lockdown	0.19 ***	-0.35 ***	.06 NS
Post lockdown	0.12 *	-0.36 ***	-0.14 *

*** Statistically significant at $p<=0.001$, ** Statistically significant at $p<=0.01$, * Statistically significant at $p<=0.05$

Table 7b: Correlation coefficients for the relationship between the mean standardised scores for non-compliant business indices and mean differences from pre-pandemic population movements in relation to Google Covid-19 mobility data relating to RETAIL AND RECREATION at the local authority level in England (n=310)

Time period:	Hand car wash index	Nail bar index	Informal economy index
Prior to local lockdowns	0.16 ***	-0.24 ***	0.14 NS
Local lockdowns	0.20 ***	-0.30 ***	-0.13 *
'First tiers'	0.25 ***	-0.27 ***	-0.5 NS
'Second tiers'	0.27 ***	-0.16 **	.06 NS
National lockdown	0.32 ***	-0.18 ***	.05 NS
Post lockdown	0.30 ***	-0.21 ***	-0.6 NS

*** Statistically significant at $p<=0.001$, ** Statistically significant at $p<=0.01$, * Statistically significant at $p<=0.05$

Table 7c: Correlation coefficients for the relationship between the mean standardised scores for non-compliant business indices and mean differences from pre-pandemic population movements in relation to Google Covid-19 mobility data relating to TRANSPORT HUBS at the local authority level in England (n=310)

Time period:	Hand car wash index	Nail bar index	Informal economy index
Prior to local lockdowns	0.36 ***	-0.30 ***	0.20***
Local lockdowns	0.36 ***	-0.33 ***	0.16 **
'First tiers'	0.26 ***	-0.45 ***	0.02 NS
'Second tiers'	0.31 ***	-0.37 ***	0.11 *
National lockdown	0.34 ***	-0.31 ***	0.18 ***
Post lockdown	0.27 ***	-0.26 ***	0.23 ***

*** Statistically significant at $p<=0.001$, ** Statistically significant at $p<=0.01$, * Statistically significant at $p<=0.05$

Table 7d: Correlation coefficients for the relationship between the mean standardised scores for non-compliant business indices and mean differences from pre-pandemic population movements in relation to Google Covid-19 mobility data relating to WORKPLACES at the local authority level in England (n=310)

Our hand car wash index showed a weak but consistently positive relationship with changes in customer footfall for all the pandemic time periods across all types of mobility indices (except for retail and recreation for the 'first tiers' time period). This positive relationship was stronger in relation to both the transport hubs and workplaces mobility indices. This may reflect the predominant location of hand car washes on major arterial roads in large cities and towns where even during the various lockdowns there were more likely to be greater numbers of essential workers commuting into workplace locations and residents visiting essential locations such as supermarkets.

In contrast, our nail bar index showed a consistently negative and stronger relationship with changes in customer footfall for all the pandemic time periods across all types of mobility, most notably in relation to the 'first tiers' and 'second tiers' time periods. This result reflects the substantive vacating of city and town centres which are the primary locations for nail bars by workers and suburban residents during all pandemic time periods. The negative correlation also illustrates that the 'return to normal' in terms of population movements has been slower to recover in localities in which nail bars are spatially concentrated.

The findings in relation to the relationship between population mobility and our informal economy index are much more mixed. For the grocery and pharmacy, and transport hubs, mobility indices the relationship with our three non-compliant indices is consistently insignificant (except for a negative relationship between the latter mobility index and the informal economy index during the 'local lockdown' pandemic time period). The consistently significant positive relationship between the workplace mobility index and the informal economy index may for the same reason as identified above in relation to hand car washes reflect a more rapid return to workplace locations by essential workers and those who could not work at home during the different pandemic time periods. We can more tentatively identify, however, that the significant negative relationship between retail and recreation mobility movements and the informal economy index during the 'local lockdown', 'first tiers', and 'post lockdown' time periods suggest non-compliant businesses were in neighbourhoods which may have experienced a greater drop in customer footfall. This raises the potential for these types of businesses to endure further economic hardship which in turn may result in greater levels of worker exploitation as business owners seek to cut operating costs further in order to ensure economic survival.

Conclusions and Recommendations

Conclusions

Our research set out to examine the extent to which the Covid-19 pandemic impacted disproportionately within neighbourhoods in which there are a concentration of non-compliant businesses that may also be sites of modern slavery. It did so by:

a) application of an empirically informed predictive model that enhances understanding of labour market non-compliance and the potential for modern slavery to enable MSPEC researchers, regulators and enforcement agencies to move from a purely intelligence-based approach to one focused on geographic concentration. This is important because the presence of non-compliant workplaces, including those that exhibit modern slavery, may go unnoticed as they are hard to reach. Therefore, these workplaces may continue to operate beyond re-generation measures where the drivers of non-compliance and modern slavery continue within (future) national and local lockdowns.

b) developing and applying a methodology for predicting the relative economic impact of the Covid-19 pandemic within different localities based upon the economic structure of these neighbourhoods; and

c) utilising Google Covid-19 mobility data to examine whether neighbourhoods with more prevalent predicted numbers of non-compliant businesses experienced a greater drop in customer footfall during different phases of Covid-19 responses to the pandemic in terms of local and national lockdowns.

The analysis identifies that hand car washes, nail bars, and other informal economy sectors are spatially concentrated within specific types of neighbourhoods. There are a distinctive set of factors such as the presence of businesses from the same sector and individuals whose circumstances mean they are more likely to consider working within the informal economy that shape the presence of different types of non-compliant businesses across localities, with many of these characteristics increasingly becoming more firmly embedded within certain neighbourhoods. It is important for academics, regulators, and enforcement agencies to appreciate this conclusion because these characteristics within defined localities represent the end of a recruitment route or labour value chain for non-compliant employers. To tackle non-compliance and modern slavery potential it is imperative to appreciate that the recruitment chains inform the lived experience of workers before they undertake employment. What goes on in

employment cannot be separated from the recruitment chain. It is the latter that informs the supply of labour.

The economic impact of the Covid-19 pandemic based upon the economic structure of neighbourhoods is also spatially concentrated. Whilst the spatial concentration of Covid-19 cases was in larger cities and towns, our Covid-19 economic impact index has identified many rural areas that are equally likely to have experienced, and will continue to experience, significant economic problems arising from the lockdown-imposed disruption to residential and worker movements.

Changes in population mobility in relation to groceries and pharmacies, recreation and retail, transport hubs, and workplaces unsurprisingly also exhibited marked spatial variations at the local authority level. Local authority areas with a much higher predicted concentration of nail bars experienced a significantly higher reduction in customer footfall compared to pre-pandemic levels. In contrast, the concentration of essential core public and private sector workplaces within some local authorities revealed lower drops in customer footfall – and these are also those localities where there is a greater predicted preponderance of hand car washes.

Based upon our findings, the impact of the Covid-19 pandemic is likely to have been mixed in relation to non-compliant businesses and sites of modern slavery. It is possible to speculate that the precarious nature of workplaces and the position/circumstances of workers employed within these means that the general economic downturn arising from the pandemic may reinforce the adverse socio-economic circumstances that give rise to greater numbers of non-compliant businesses within certain neighbourhoods. However, many non-compliant businesses are located within neighbourhoods that may not be the same ones targeted by national and local economic regeneration initiatives implemented in response to the pandemic. Therefore, measures still need to be taken to ensure that relevant actions and interventions are concentrated within these localities that have been highlighted, to further prevent non-compliance and modern slavery from becoming more embedded in these neighbourhoods.

Recommendations

Whilst the current government has indicated support for the creation of a **Single Enforcement Body (SEB)** for labour market enforcement, it was not included in the Autumn 2022 legislative programme and there is now some doubt about whether it will be created during this Parliament. We still believe in the need for a SEB to oversee the labour market regulation and enforcement and to protect workers from underpayment of the

minimum wage and the different forms this exploitation can take. Our wider research programme suggests that a consolidation of the roles and responsibilities of the multiple bodies currently involved in the regulation of labour market non-compliance and the associated risk of modern slavery under the direction of the Director of Labour Market Enforcement will enable a move towards a project management approach that incorporates representatives of all enforcement agencies and regulators. Therefore, greater co-ordination of resources and information will allow for more effective regulation. This new body should build on the successful aspects of each individual agency that has an interest in improving labour market compliance and deterring modern slavey utilising the existing level of intelligence gathering and expertise. Such a body would require sufficient funding and access to records via the HMRC to carry out its duties. Its role should be to be able to identify venues of interest, ensure they are compliant, and that the well-being of the employees and the public is protected.

Utilising the place-based approach to enhance the evidence-base available to regulatory and enforcement agencies: The predictive hand car wash, nail bar, informal economy and Covid-19 economic impact indices can provide a powerful and valuable tool to support place-based approaches for both national and local education, engagement, and enforcement. Feedback from regulatory and enforcement agencies that have already been provided access to and utilised this data to shape their interventions supports this recommendation. By applying data generated by the respective indices, national regulators, local councils, and police forces can focus their efforts and resources in identified high risk areas. The indices highlight a need for local authorities and regulators to take a neighbourhood approach to tackling illicit activity relating to the informal economy. By improved mapping of the informal sectors, clearer details aiding both local and national agencies and operations can be realised.

To use the indices as part of intelligence-based enforcement and regulation and to receive additional training on spotting signs of market non-compliance across all enforcement agencies: The use of the additional unique insight provided by our respective indices will allow for more efficient policing strategies. Further training to identify non-compliance will better prepare officers to carry out beat patrols or direct inspections and raids (for example training to recognise the significance of cash only sales, the presence of non-uniformed staff sometimes without dedicated workstations and untrained workers). It is also the case that our research can assist in a geographical approach to enforcement within which intelligence-based approaches can be applied in relation to the likely

presence of non-compliance workplaces some of which may exhibit elements of modern slavery.

To facilitate a wider conversation with the public about the use of market non-compliant businesses: Further research and consultation is needed to understand why British customers continue to use businesses whose poor treatment is an open secret and how damaging the non-compliant members of an industry can be. This should take the form of consultations and public awareness campaigns. Most of the research on labour market non-compliance looks at supply side characteristics it is important too to look at demand side characteristics.

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